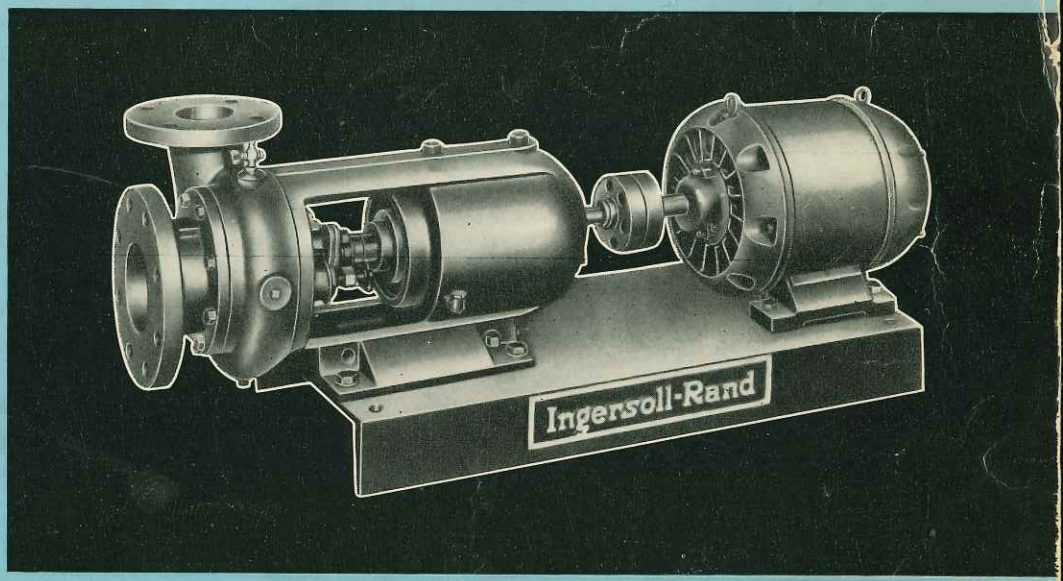
415
Digest 6

~~103-11/B~~ 1st shoe

A COMPLETE LINE OF

general purpose centrifugal pumps

CRV CRADLE-MOUNTED TYPE



CAPACITIES:
5 to 2400 gallons per minute

PRESSURES:
10 to 500 feet total head

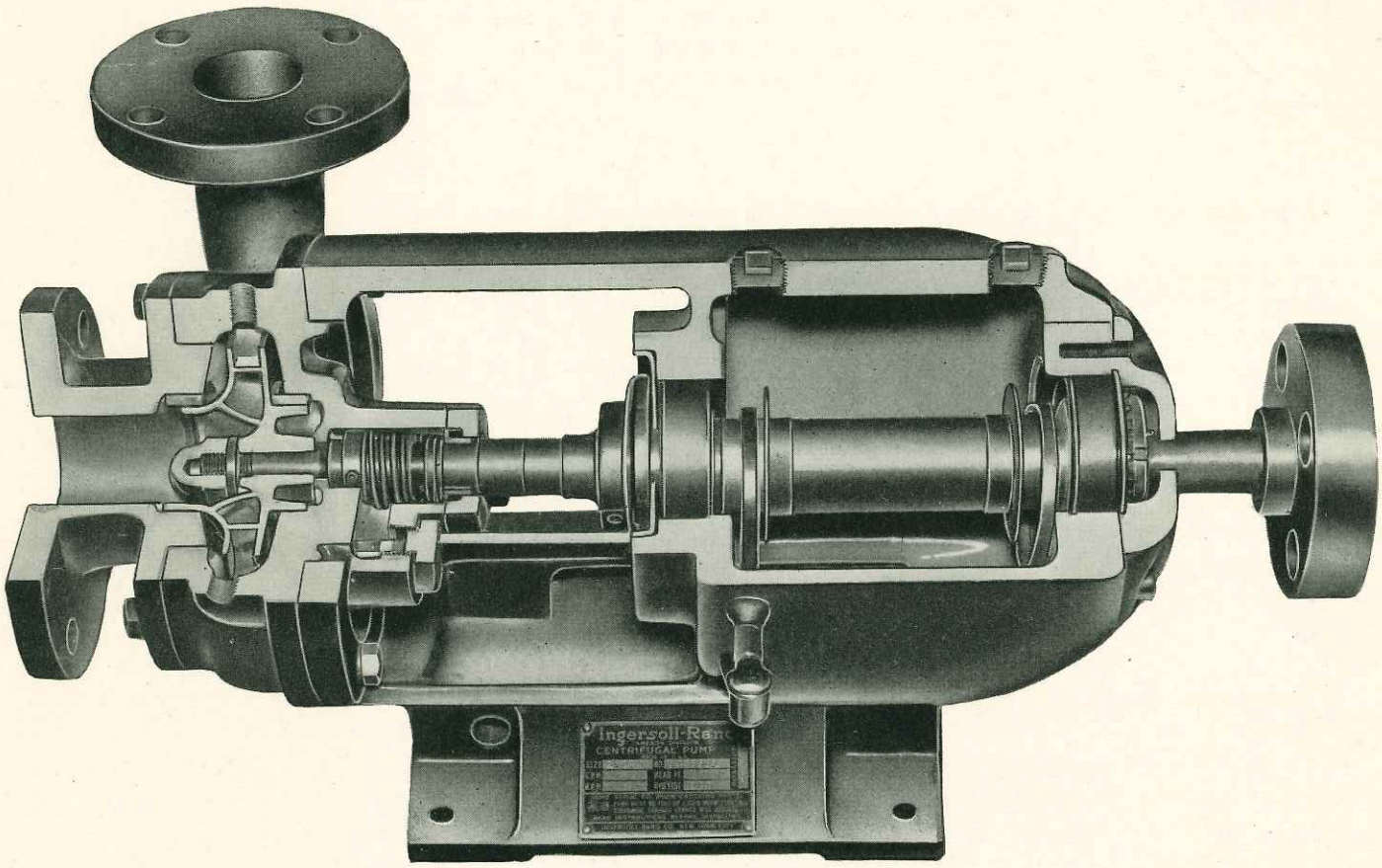
Ingersoll-Rand
CAMERON PUMP DIVISION

FORM 7223

Ingersoll-Rand

general purpose centrifugal pumps

CRADLE-MOUNTED TYPE



dependable • economical • versatile

In this cradle-mounted design, pump and driver are separate units, mounted close together on a single, structural steel base plate and directly connected by a flexible coupling. V-belt or reduction gear drives are also available if desired.

The pump consists of a rigid cradle which supports the bearings, shaft, impeller, and the casing. The pump casing is bolted to the end of the cradle with a precision-machined rabbet fit, assuring perfect alignment between stationary and rotating parts.

Simplicity of design, rugged construction and careful selection of all materials used — plus highly skilled workmanship in every step of manufacture — enable these pumps to meet the highest standards of performance year after year with minimum attention and maintenance. The following are some of the outstanding advantages of I-R Cradle-Mounted Pumps.

Higher Efficiency

Constant research and hydraulic testing have resulted in a pump design that enables these units to deliver more capacity per horsepower input than most other units available. This means a **smaller motor,** and **lower power bills.**

Interchangeability

Hydraulically and physically, the pump ends are the same as those used on the close-coupled I-R Motorpump — known the world over for economy and dependability. For a given pressure, capacity and shaft speed, impellers and other parts are interchangeable, simplifying replacement parts inventories where both types of pump are used in a single plant.

Maximum Strength

The high-strength cast cradle provides a rigid, one-piece mounting that assures perfect shaft alignment. The I-beam type construction gives the greatest rigidity and maximum strength for supporting the shaft and pump end.

Greater Accessibility

Extra-large side openings in the cradle provide easy access to the stuffing box and casing bolts... and two-piece, split-type stuffing-box glands save time and effort in replacement of shaft packing.

Effective Lubrication

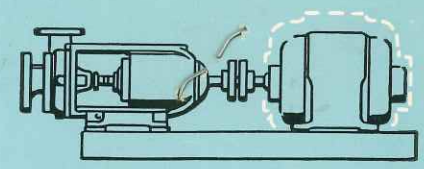
The cradle has a built-in large-capacity oil reservoir, and the ball bearings are positively lubricated by two oil rings which ride the shaft and carry an abundant supply of oil along the shaft to the bearings.

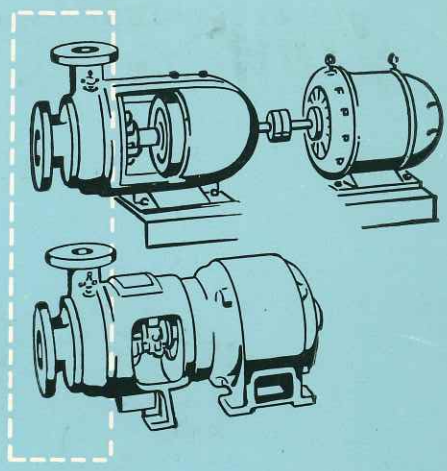
Interchangeable Bearings

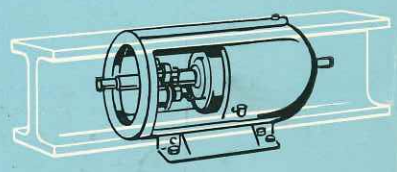
The two deep-groove ball bearings at each end of the cradle are identical, and can be used interchangeably. The coupling-end bearing is horizontally positioned between a snap ring and locking nut, enabling it to take both radial and thrust loads. Four different cradle sizes all use the same bearings, greatly reducing repair parts inventories.

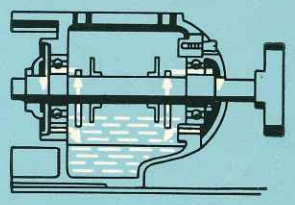
Driver Flexibility

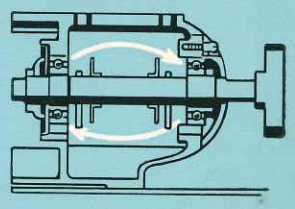
The cradle-mounted construction permits the use of any desired driver — electric motor, steam turbine or gasoline engine. The driver can be removed or replaced without disturbing the intake or discharge connections to the pump. Because of the extra heavy baseplate construction, no individual driver pads are required.

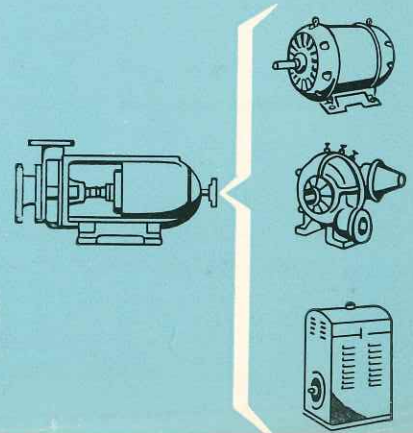










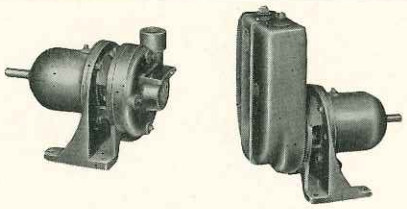
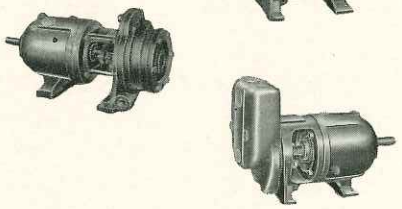
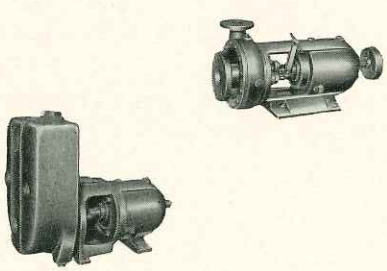
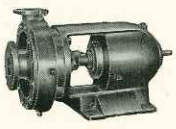


the Complete FR Line

contains a cradle-mounted pump for every application

The five basic cradle groups, together with the corresponding pump types, capacities and horsepower ratings, are shown in the tabulation below. Cradles in Group No. 1 and No. 1A are grease lubricated. All other cradles are designed for ring oil lubrication.

The flexibility of this complete line of cradle-mounted pumps is still further increased by the alternate drives and design modifications listed on pages 11 and 13.

Cradle Group	Typical Units	Models	Discharge Sizes in Inches		Stages	Max. Cap. in GPM	Max. Head in Feet	Max. Liquid Temperature	Max. Horsepower		
			Closed Impeller	Open Impeller					Direct Drive	Flat Belt Drive	V-Belt Drive
Group No 1 Standard Duty Cradles		CKRVS	¾, 1, 1½, 2	1	Single	240	160	220°	5	2	3
		CKRVSP*	——	1	Single	100	100	220°	5	2	3
Group No 1a Standard Duty Cradles		CRVN	1, 1½, 2	1, 1½	Single	150	60	400°	2	1	1½
Group No 2 Heavy Duty Cradles		CRVN	1, 1½, 2	1, 1½	Single	200	100	400°	20	12	20
		CRVNL	1, 1½, 2, 3	1	Single	600	175	400°	20	12	20
		CMRVN	1	——	Two	60	300	400°	20	12	20
		CRVNP*	——	1½, 2, 2½	Single	260	160	400°	20	12	20
Group No 3 & 3a Heavy Duty Cradles		CRV	1½, 2	1½, 2	Single	225	125	400°	20	12	20
		CRVL	1½	1½	Single	120	80	400°	20	12	20
		CRVH	1½, 2	2	Single	350	250	400°	20	12	20
		CRVS	3	——	Single	450	90	400°	20	12	20
		CRVNP*	——	3	Single	500	100	400°	20	12	20
Group No 4 Heavy Duty Cradles		CRVL	2, 3, 4, 5	2, 3, 4, 5	Single	1800	125	400°	40	12	20
		CRVH	3	——	Single	550	225	400°	40	12	20
Group No 5 Heavy Duty Cradles		CMRV	1½, 2	——	Two	300	500	400°	75	20	40
		CRVL	6	6	Single	2400	140	400°	75	20	40
		CORVL	6	5	Single	2000	140	400°	75	20	40

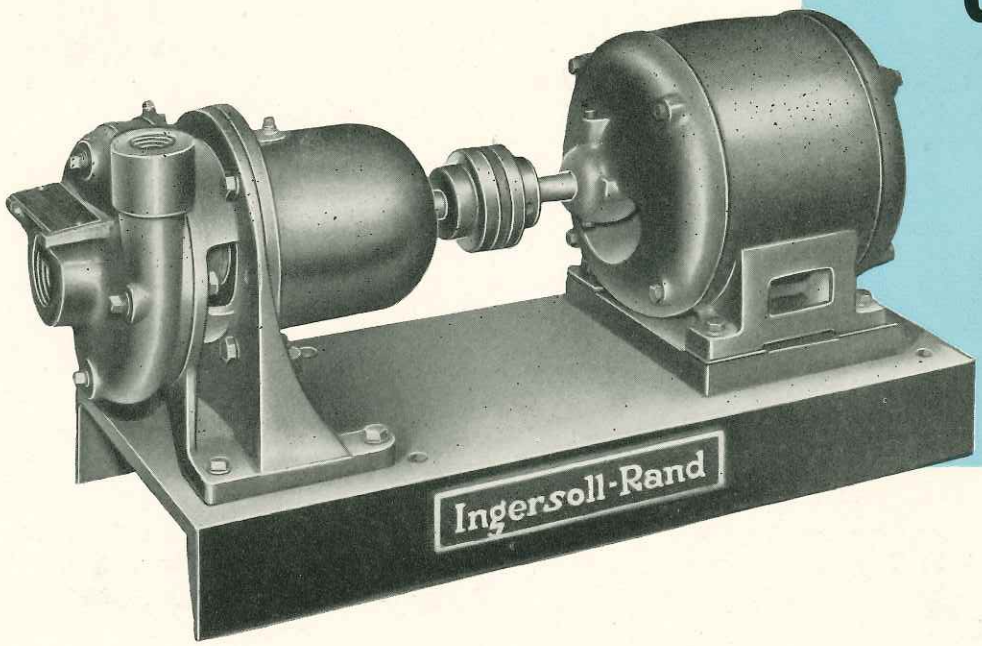
* Self-priming design.

R CONDITIONS BEYOND OUR CONTROL.
UOTATIONS SUBJECT TO CHANGE WITHOUT NOTICE

Group No. 1 standard duty cradles

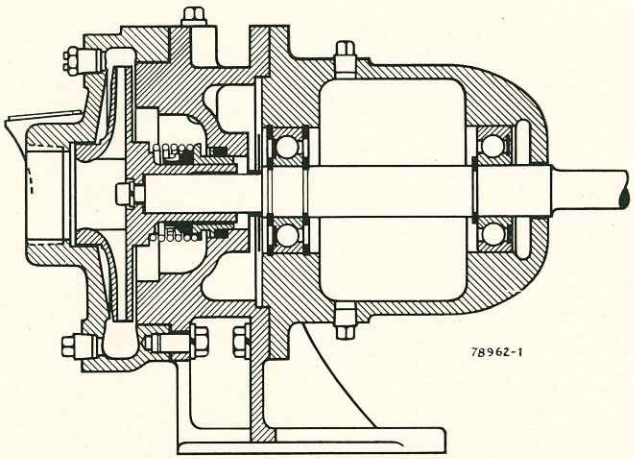
Single-Stage - up to 240 gpm up to 160 feet head

CKRVS and CKRVSP models



Single-stage CKRVS unit with motor drive.

CKRVS pumps built on Group 1 cradles are designed for general service and can be attached to any type of driver. They have found wide application in chemical and food-processing industries, air conditioning, beverage plants, buildings, manufacturing plants, etc.



Cross-section of the CKRVS unit, note mechanical seal arrangement.

These units are of the single-stage, single-suction volute type with threaded suction and discharge nozzles. Capacities extend up to 240 gallons per minute and heads up to 160 feet. They are built in ¾, 1, 1½ and 2 inch discharge sizes and are capable of handling liquids with temperatures up to 220° F. JCS type mechanical shaft seals are standard construction, completely eliminating all stuffing-box maintenance. The cradles are grease lubricated. While a foot-mounting is shown, a sidewall design utilizing the same cradle is also available.

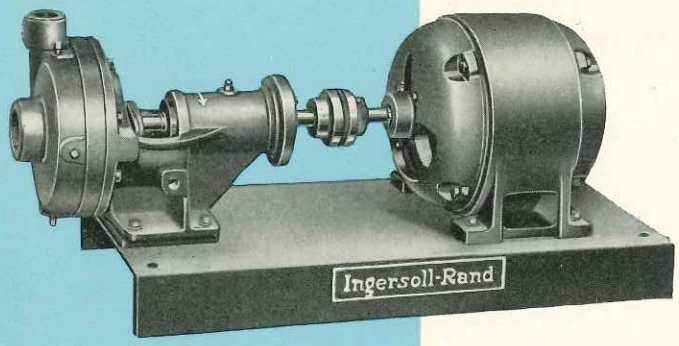
These CKRVS pumps are hydraulically equal to the famous close-coupled, I-R Motorpumps, which have now been serving throughout industry for the past 20 years, with an outstanding record of trouble-free performance. The casing, connecting piece, mechanical seal and impeller are interchangeable with the companion model KRVS Motorpumps.

The CKRVSP unit is provided with a specially designed suction casing and shroud which makes it a completely self-priming pump, particularly suitable for handling suction lifts where air or vapor is present in the liquid. This self-priming model will deliver up to 100 gallons per minute at heads up to 100 feet.

CRVN models

Group No. 1a standard duty cradles

Single-Stage - up to 150 gpm
up to 60 ft. head



Single-stage CRNV unit with motor drive.

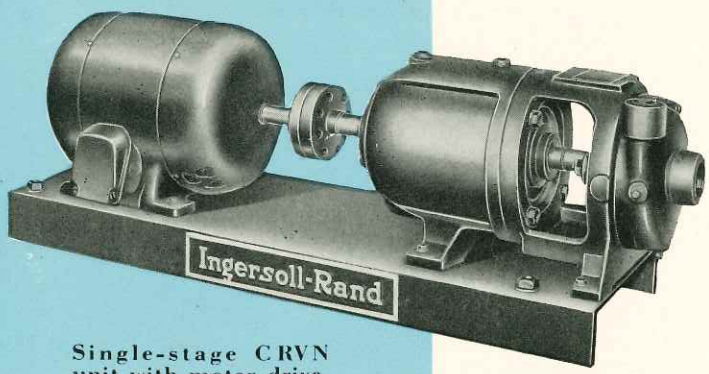
CRVN single-stage, single-suction volute type pumps in 1, 1½ and 2 inch discharge sizes, are adaptable to any type of drive. They range in capacity to 150 gallons per minute at heads up to 60 feet. The maximum temperature of the liquid to be handled under normal conditions is 211° F. Where hooded smother-

CRVN, CMRVN & CRVNP models

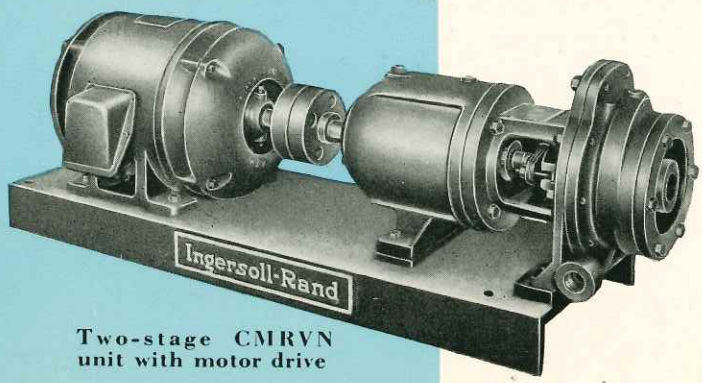
Group No. 2 heavy duty cradles

Single-Stage - up to 600 gpm
up to 175 ft. head

Two-Stage - up to 60 gpm
up to 300 ft. head



Single-stage CRVN unit with motor drive.



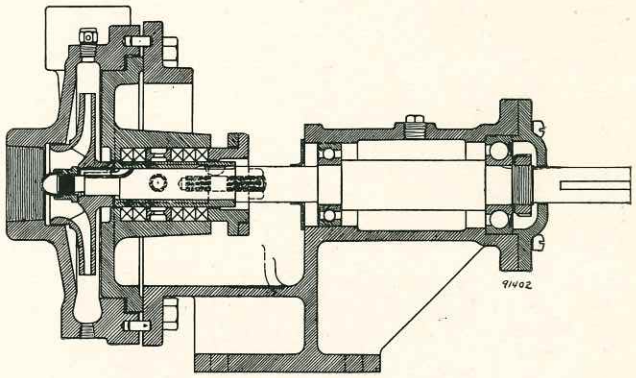
Two-stage CMRVN unit with motor drive

These heavy-duty single-stage CRVN models are available in 1, 1½ and 2 inch discharge sizes with capacities to 600 gpm at heads to 175 feet. The two-stage class CMRVN unit, with one inch discharge, is suitable for capacities to 60 gpm and heads to 300 feet. Both models will handle liquids up to 211° F with standard construction, or 250° F by using hooded, smothering type glands, case hardened steel shaft sleeve and external water seal. The addition of water-cooled stuffing boxes permits operation to 400° F. The self-priming CRVNP models are built in 1½ and 2 inch discharge sizes with capacities to 200 gpm and heads to 100 feet.

CRVN and CMRVN models are extensively used in chemical plants, refineries, food processing plants, paper mills, dairies, and manufacturing plants. The

ing-type glands, case hardened steel shaft sleeve and external water seal are used, it is suitable for volatile liquids and for temperatures to 250° F. The addition of water-cooled stuffing boxes extends high temperature operation to 400° F. The cradles are grease lubricated.

In addition to general pumping service, class CRVN pumps are widely used in special applications such as handling paper stock, hot wort, distillery mash, etc. where there is a great amount of suspended foreign material. In these cases an open-type impeller is used. Except for details of the cradle construction, these pumps are similar to the heavy-duty units described below.



Cross section of typical Class CRVN standard duty cradle-mounted pump.

self-priming models are ideal for bulk storage applications where vapors are present in the suction line, as well as for use in mine dewatering, sump draining and irrigation.

The following construction features contribute to the dependability and economy of these heavy-duty cradle-mounted pumps.

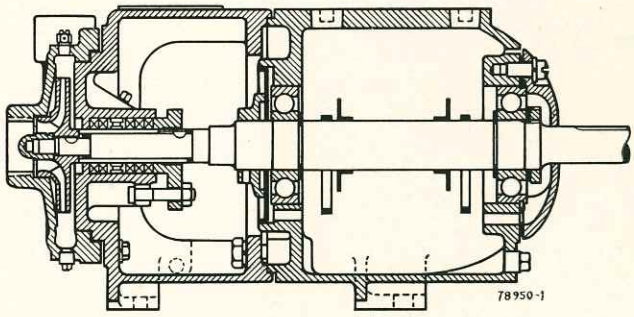
The volute type casing is vertically split for easy accessibility, and the suction nozzle directs the liquid right into the impeller eye. The discharge nozzle can be turned to any one of 4 positions, often permitting simplified piping arrangements.

The heat-treated carbon steel shaft assures permanent alignment of all rotating parts. A keyed shaft sleeve prevents leakage which might otherwise damage or corrode the shaft proper.

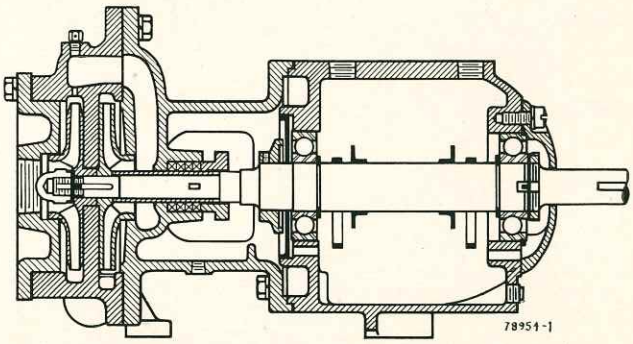
Single-suction impellers are cast in one piece. They are hydraulically and mechanically balanced for sustained high efficiency and freedom from vibration at all loads.

The stuffing box is deep enough to accommodate 4 or more rings of packing and a sealing gland. The stuffing box gland is of two-piece construction and can be easily removed from the shaft.

Channel steel baseplates are of extra-heavy construction, maintaining proper alignment of pump and driver.



Cross section of typical CRVN single-stage pump

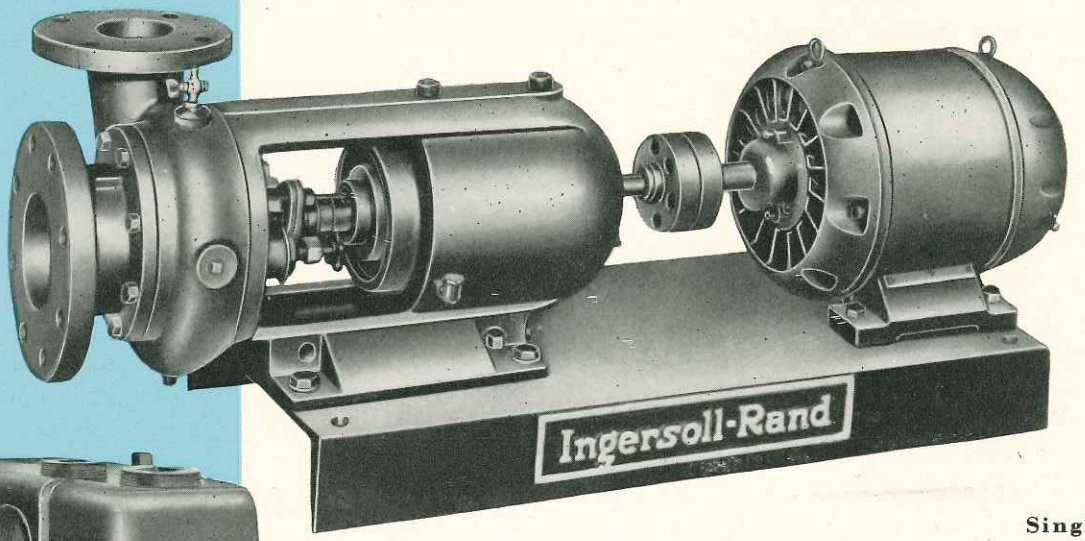


Cross section of typical CMRVN two-stage pump

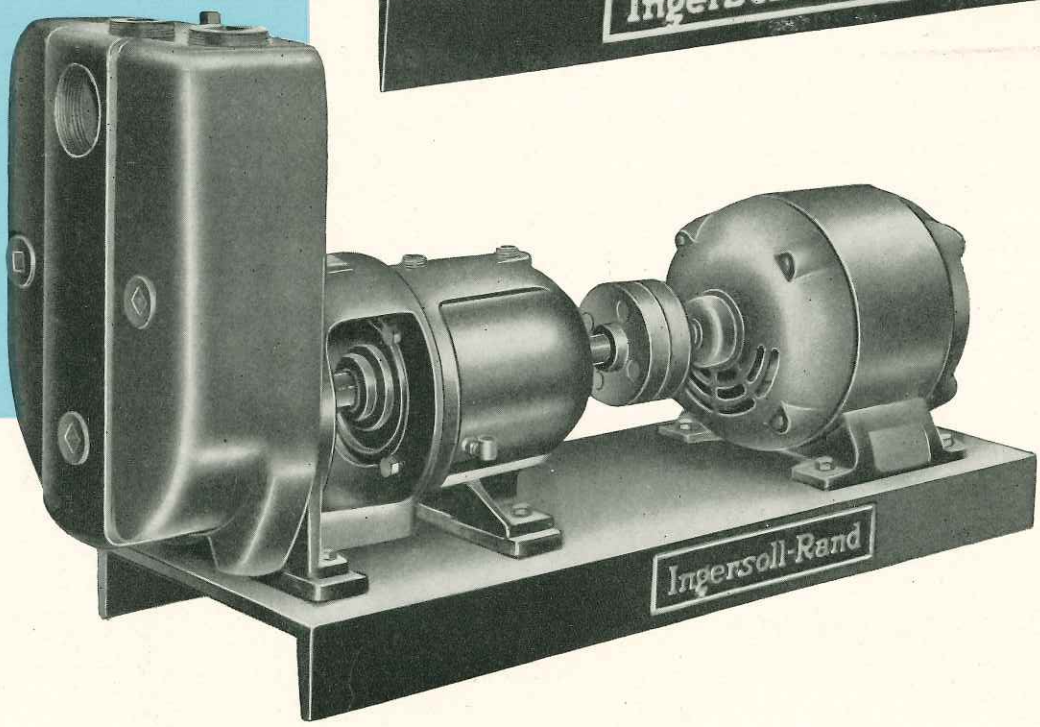
CRV, CRVNP models

Group No. 3 & 3a heavy duty cradles

Single-Stage - up to 450 gpm
up to 250 ft. head



Single-stage CRV pump with motor drive



Self-priming CRVNP pump with motor drive

Heavy duty CRV pumps are widely used throughout the petroleum, chemical and food industries, as well as for air conditioning, mine drainage, contracting jobs and in all types of manufacturing plants. Most sizes of these cradle-mounted units are available with open impellers for handling paper stock, hot wort, distillery mash and other liquids containing suspended solids.

The standard CRV models with Group 3 cradles are of the single-stage, single-suction volute type with flanged connection in 1½, 2 and 3 inch discharge sizes. They will handle liquid with temperatures up to 400° F when furnished with water-cooled stuffing boxes, smothering glands and case hardened steel shaft sleeves.

The following features are well illustrated in the cut-away unit shown below.

The casing is vertically split, with an end suction nozzle that directs the liquid right into the center of the impeller. The discharge nozzle is normally mounted in the vertical position as shown, but it can be turned 90° or 180° from this position if desired.

The shaft is made of heat-treated carbon steel for lasting strength and rigidity. A shaft sleeve, gasketed and keyed to the shaft, prevents leakage under the sleeve.

The impeller is a single casting, hydraulically and mechanically balanced. Renewable casing rings seal the impeller hub against leakage.

The stuffing box is extra deep, accommodating 5 or more rings of packing and a sealing gland. This seal is fed from the pump through a concealed passage with needle valve control. The stuffing box gland is of the two-piece type, permitting easy removal from the shaft. Hooded smothering type glands can also be furnished if desired.

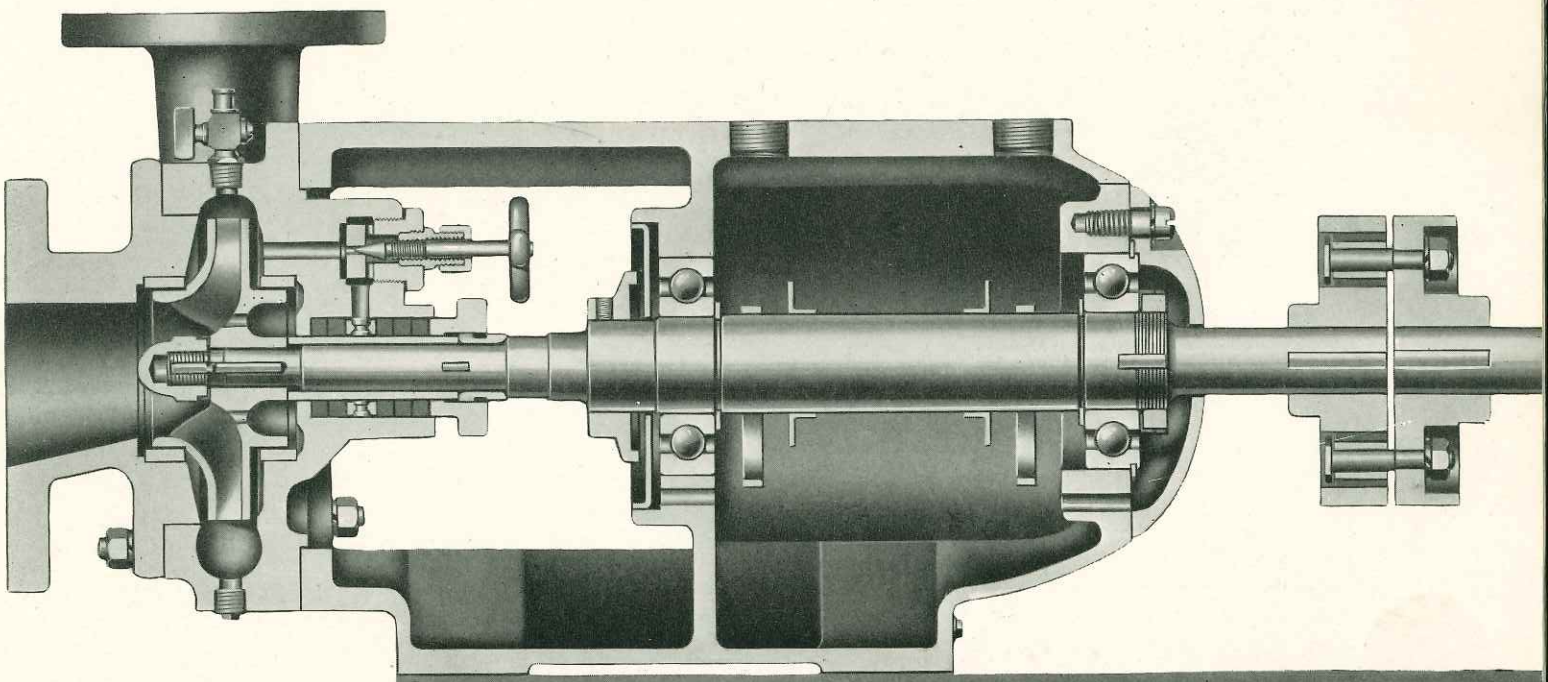
The ball bearings that support the rotor are of the deep-groove type, capable of carrying large radial or thrust loads. Note the large oil sump with two bronze oil rings for carrying oil to the bearings.

The cradle is barrel-type, designed for extra strength and rigidity. The side openings allow plenty of space for easy access to the stuffing box. This cradle design, with its rabbet fits machined at a single setting, assures perfect alignment of all parts.

Mechanical shaft seals can be supplied in place of the stuffing box if desired. Cameron, JCS or other types of mechanical seals are available in a selection of materials to meet all liquid and suction conditions. Further details are given on Page 13.

The base plate, made of heavy-gauge channel steel, provides single, rigid support for the pump and driver. Special drip lip base plates are also available.

The self-priming CRVNP unit is similar to the CRV pumps, but with a self-primer casing and shroud and an open impeller. It is available with 3 inch discharge, for capacities to 500 gpm and heads to 100 ft. It is designed for applications under suction lift, where the presence of air or vapor in the liquid would cause loss of prime in a straight centrifugal pump. These units are used for mine drainage, bilge pumping, sump drainage, irrigation, process and bulk station applications.



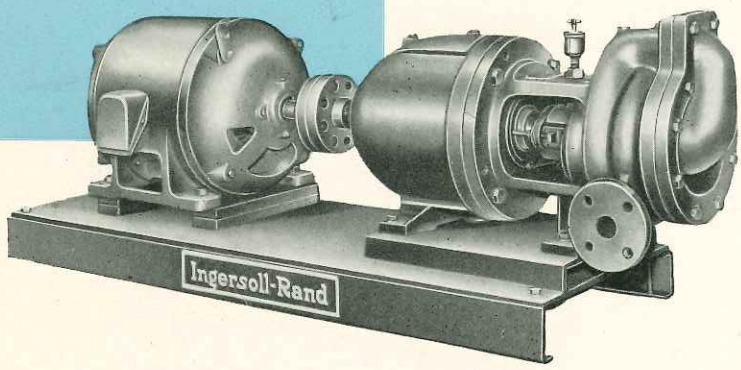
Cross section showing construction details of a typical CRV pump.

CMRV & CRVL models

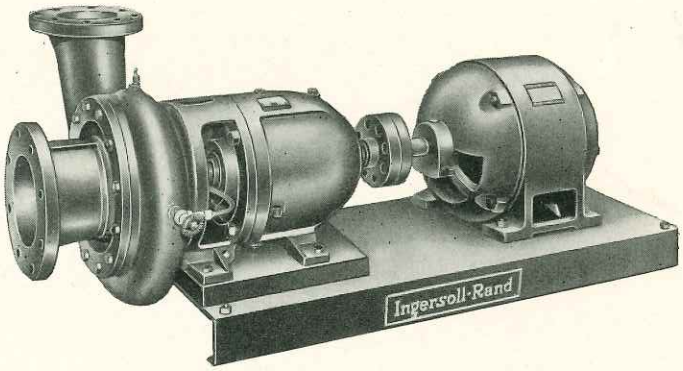
Group No. 4 and 5 heavy duty cradles

Single-Stage - up to 2400 gpm
up to 225 ft head

Two-Stage - up to 300 gpm
up to 500 ft head



Two-stage CMRV pump with motor drive

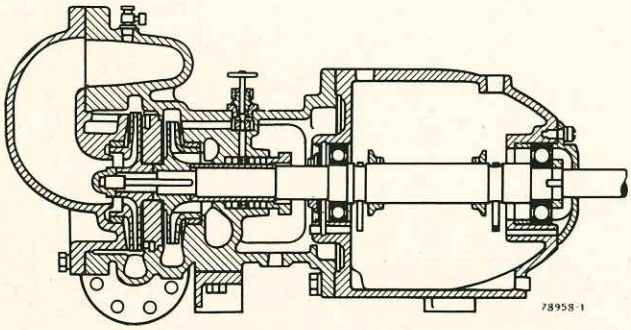


Single-stage CRVL pump with motor drive

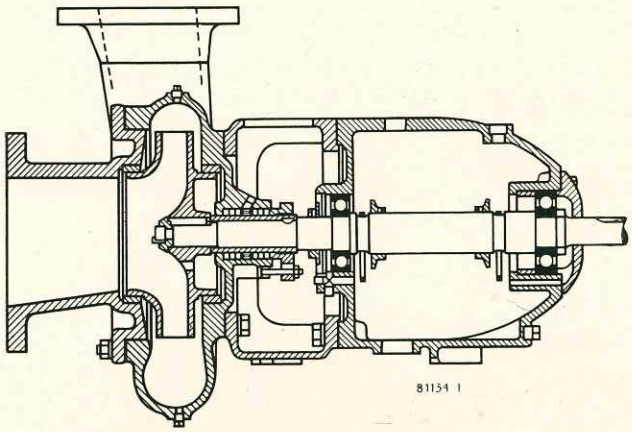
The 1½ and 2 CMRV and 5 CORVL pumps are built on the Group 5 cradle. The CMRV and CRVL units, with Group 4 or 5 cradles, are designed for general service wherever heavy duty pumps are required.

The two-stage CMRV pumps are built in 1½ and 2 inch discharge sizes for capacities to 300 gpm at heads to 500 feet. The temperature limit is 400° F with case-hardened steel shaft sleeve, external water seal, smothering gland and water-cooled stuffing boxes. These volute type, vertically split pumps have the suction nozzle to the right as you look toward the pump end. Except for the two-stage construction, with single-suction impellers placed back to back, all design features are the same as for the units previously described.

The 5 inch CORVL (open impeller) and the 6 inch CRVL pumps built on the Group 5 cradle are high capacity, low head units capable of handling up to 2400 gpm at heads to 140 feet. The features described on pages 8 and 9, also apply to these two models. Temperature limit is 400° F with case-hardened steel shaft sleeve, external water seal and water-cooled stuffing box. All of these units can be furnished with hooded smothering type gland if required.



Cross section of two-stage CMRV pump

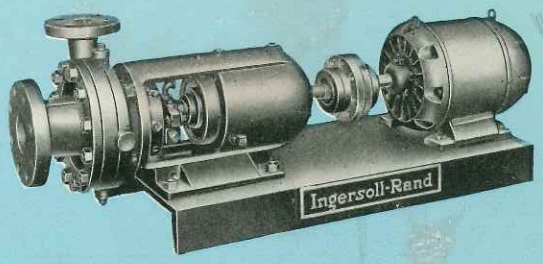


Cross section of Single-stage CRVL pump.

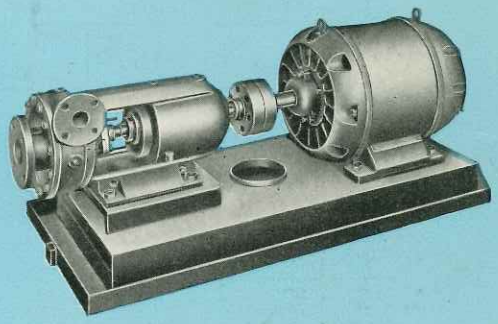
special purpose units

In every field of pumping service, operating conditions frequently call for a special mounting or drive. In such cases the versatility of I-R cradle-mounted pumps is particularly valuable. In addition to the conventional electric motor drive, the pump unit can be powered by oil or gasoline engines or steam turbine, with direct coupling, V-belt or flat belt drive. Variations of these drives with reduction or step-up gears are also available, to adapt any driver speed to the proper pump speed.

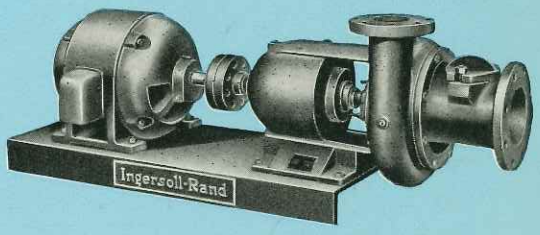
The units shown here are representative of the many special drives or modifications that can be supplied. If your special needs are not covered here, your Ingersoll-Rand representative can suggest a set-up to meet your precise requirements for any application.



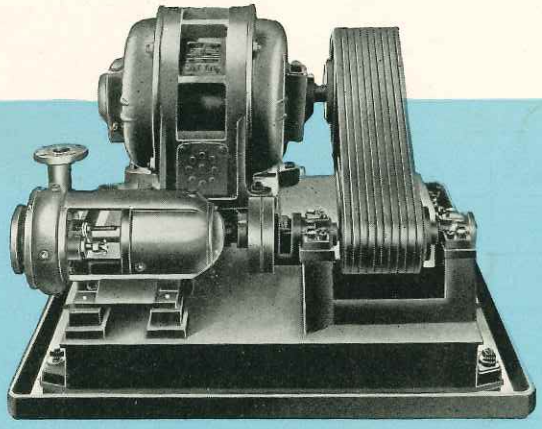
Refinery type class CRVR pump with water-cooled boxes.



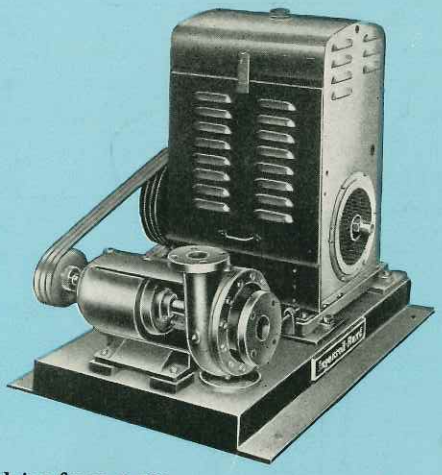
Standard unit with drip lip base



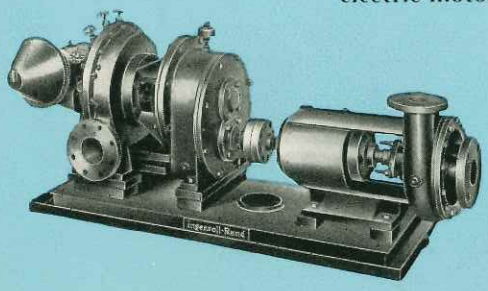
Standard unit with hand hole suction piece



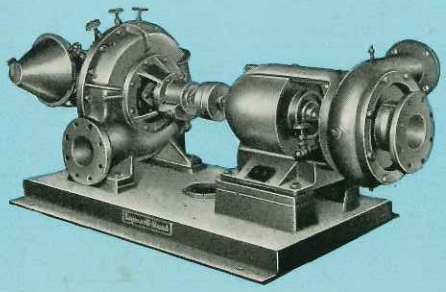
V-belt drive from an electric motor



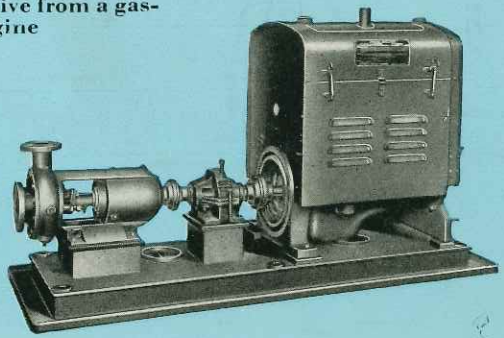
V-belt drive from a gasoline engine



Geared drive from a steam turbine



Direct drive from a steam turbine



Geared drive from a gasoline engine

60 cycle performance

HEAVY-DUTY CRV

GPM	TOTAL HEAD IN FEET										
	20	30	50	60	80	100	125	150	200	225	250
50	1½CRV1	1½CRV1½	1½CRV1½	1½CRV1½	1½CRV2	1½CRV3	1½CRV3	1½CRVH5	1½CRVH7½	1½CRVH7½	1½CRVH10
75	1½CRV1	1½CRV1½	1½CRV1½	1½CRV2	1½CRV3	1½CRV3	1½CRVH5	1½CRVH5	1½CRVH7½	1½CRVH10	1½CRVH15
100	2CRV1	1½CRV1½	1½CRV2	1½CRV3	1½CRV3	1½CRV5	1½CRVH5	1½CRVH7½	1½CRVH10	1½CRVH10	1½CRVH15
125	2CRV1	1½CRV2	1½CRV3	1½CRV3	1½CRV5	1½CRV5	1½CRVH7½	1½CRVH7½	1½CRVH10	1½CRVH15	2CRVH20
150	3CRVS1½	2CRV2	2CRV3	2CRV3	2CRV5	2CRV5	1½CRVH7½a	1½CRVH10a	1½CRVH15a	1½CRVH15a	2CRVH20
175	3CRVS1½	2CRV2	2CRV3	2CRV5	2CRV5	2CRV7½	2CRVH7½	2CRVH10	2CRVH15	2CRVH15	2CRVH20
200	3CRVS1½	2CRV3	2CRV5	2CRV5	2CRV5	2CRV7½	2CRVH10	2CRVH15	2CRVH15	2CRVH20	2CRVH20
225	3CRVS1½	2CRV3	2CRV5	2CRV5	2CRV7½	2CRV7½	2CRVH10	2CRVH15	2CRVH20	2CRVH20	
250	3CRVS2	3CRVS5	3CRVS5	2CRV7½	2CRV7½	2CRVH10	2CRVH15	2CRVH15	2CRVH20	2CRVH20	
300	3CRVS3	3CRVS5	3CRVS5	3CRVS7½	3CRVS10	3CRVL15	3CRVHS15	2CRVH20	3CRVHS25	3CRVHS25	
350	3CRVH3	3CRVS5	3CRVS7½	3CRVS7½	3CRVS10	3CRVL15	3CRVH20	2CRVH20a	3CRVHS25	3CRVHS30	
400	3CRVL3	3CRVS5	3CRVS7½	3CRVS10	3CRVS10	3CRVL15	3CRVH20	3CRVH20	3CRVH30	3CRVH30	
450	3CRVL5	3CRVL5	3CRVS10a	3CRVS10	3CRVL15	3CRVL15	3CRVH25a	3CRVH25	3CRVH30	3CRVH40	
500	3CRVL5	3CRVL7½	3CRVL10	3CRVL10	3CRVL15	3CRVL20	4CRVL25	3CRVH25a	3CRVH40a	3CRVH40a	
550	4CRVL5	3CRVL7½	3CRVL10	3CRVL15	3CRVL15	3CRVL20	4CRVL25	3CRVH30a	3CRVH40a		
600	4CRVL5	4CRVL7½	4CRVL10	4CRVL15	4CRVL20	4CRVL20	6CRVL40				
700	4CRVL7½	4CRVL7½	4CRVL15	4CRVL15	4CRVL20	4CRVL25	6CRVL40				
800	5CRVL7½	4CRVL10	4CRVL15	4CRVL20	4CRVL20	4CRVL25	6CRVL50				
900	5CRVL7½	4CRVL15	4CRVL20	4CRVL20	4CRVL25	4CRVL30	6CRVL50				
1000	5CRVL10	5CRVL10	4CRVL20	4CRVL25	4CRVL30	4CRVL30	6CRVL50				
1100		5CRVL15	5CRVL20	5CRVL25	5CRVL30	5CRVL40	6CRVL60				
1250		5CRVL15	5CRVL25	5CRVL25	5CRVL40	5CRVL40	6CRVL60				
1400		6CRVL15	5CRVL25	5CRVL30	5CRVL40	6CRVL50	6CRVL60				
1600		6CRVL20	5CRVL30	5CRVL40	6CRVL50	6CRVL50					
1800			5CRVL40	5CRVL40	6CRVL50	6CRVL60					
2000				6CRVL50	6CRVL60	6CRVL75					
2400				6CRVL50	6CRVL60						

2 STAGE CMRV

GPM	TOTAL HEAD IN FEET										
	260	280	300	325	350	375	400	425	450	475	500
20	1½CMRV10	1½CMRV10	1½CMRV10	1½CMRV10	1½CMRV10	1½CMRV10	1½CMRV10	1½CMRV15	1½CMRV15	1½CMRV15	1½CMRV15
30	1½CMRV10	1½CMRV10	1½CMRV10	1½CMRV10	1½CMRV10	1½CMRV10	1½CMRV15	1½CMRV15	1½CMRV15	1½CMRV15	1½CMRV15
40	1½CMRV10	1½CMRV10	1½CMRV10	1½CMRV10	1½CMRV10	1½CMRV15	1½CMRV15	1½CMRV15	1½CMRV15	1½CMRV15	1½CMRV20
50	1½CMRV10	1½CMRV10	1½CMRV10	1½CMRV10	1½CMRV15	1½CMRV15	1½CMRV15	1½CMRV15	1½CMRV15	1½CMRV10	1½CMRV20
60	1½CMRV10	1½CMRV10	1½CMRV10	1½CMRV15	1½CMRV15	1½CMRV15	1½CMRV15	1½CMRV20	1½CMRV20	1½CMRV20	1½CMRV20
75	1½CMRV10	1½CMRV10	1½CMRV15	1½CMRV15	1½CMRV15	1½CMRV15	1½CMRV15	1½CMRV20	1½CMRV20	1½CMRV20	1½CMRV20
100	1½CMRV15	1½CMRV15	1½CMRV15	1½CMRV15	1½CMRV20	1½CMRV20	1½CMRV20	1½CMRV20	1½CMRV25	1½CMRV25	1½CMRV25
125	1½CMRV15a	1½CMRV15	1½CMRV20	1½CMRV20	1½CMRV20	1½CMRV20	1½CMRV25	1½CMRV25	1½CMRV25	1½CMRV30	1½CMRV30
150	2CMRV20	2CMRV20	2CMRV20	2CMRV20	2CMRV25	2CMRV25	2CMRV25	2CMRV30	2CMRV30	2CMRV30	2CMRV40
175	2CMRV20	2CMRV20	2CMRV25	2CMRV25	2CMRV25	2CMRV30	2CMRV30	2CMRV30	2CMRV40	2CMRV40	2CMRV40
200	2CMRV25	2CMRV25	2CMRV25	2CMRV25	2CMRV30	2CMRV30	2CMRV40	2CMRV40	2CMRV40	2CMRV40	2CMRV40
225	2CMRV25	2CMRV25	2CMRV30	2CMRV30	2CMRV30	2CMRV40	2CMRV40	2CMRV40	2CMRV40	2CMRV40	
250	2CMRV30	2CMRV30	2CMRV30	2CMRV40	2CMRV40	2CMRV40	2CMRV40	2CMRV40			
275	2CMRV30	2CMRV30	2CMRV40	2CMRV40	2CMRV40	2CMRV40					

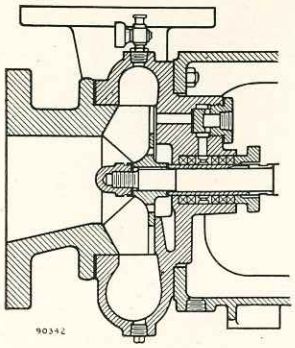
CKRVS & CRVN

GPM	TOTAL HEAD IN FEET									
	15	30	50	70	100	125	175	200	250	300
5	¾CKRVS¼	¾CKRVS¼	¾CKRVS¼	¾CKRVS½	1CKRVS¾	1CRVNL1½	1CRVNL2	1CMRVN2	1CMRVN3	1CMRVN5
10	¾CKRVS¼	¾CKRVS⅓	¾CKRVS⅓	¾CKRVS½	¾CKRVS¾	1CRVNL1½	1CRVNL3	1CMRVN3	1CMRVN5	1CMRVN5
15	¾CKRVS¼	¾CKRVS⅓	¾CKRVS½	¾CKRVS¾	1CRVN1½	1CRVNL1½	1CRVNL3	1CMRVN3	1CMRVN5	1CMRVN5
20	¾CKRVS¼	¾CKRVS⅓	¾CKRVS½	¾CKRVS¾	1CRVN1½	1CRVNL1½	1CRVNL3	1CMRVN3	1CMRVN5	1CMRVN5
30	1CKRVS¼	¾CKRVS½	¾CKRVS¾	1CKRVS1	1CRVN1½	1CRVNL2	1CRVNL3	1CMRVN5	1CMRVN5	
40	1½CKRVS¼	1CKRVS½	1CKRVS¾	1CKRVS1	1CRVNL2	1CRVNL3	1CRVNL3	1CMRVN5		
50	1½CKRVS⅓	1CKRVS¾	1CKRVS1	1CKRVS1½	1CRVN2	1CRVNL3	1CRVNL5			
60	1½CKRVS½	1½CKRVS¾	1½CKRVS1½	1½CKRVS1½	1½CKRVS3	1½CKRVS3	1½CRVNL7½			
75	1½CKRVS½	1½CKRVS1	1½CKRVS1½	1½CKRVS2	1½CKRVS3	1½CKRVS3	1½CRVNL7½			
100	1½CKRVS¾	1½CKRVS1	1½CKRVS1½	1½CKRVS3	1½CRVN5	1½CRVNL7½	1½CRVNL7½			
125	2CKRVS¾	1½CKRVS1½	1½CKRVS2	1½CKRVS3	1½CRVN5	1½CRVNL7½	2CRVNL7½			
150		2CKRVS1½	2CKRVS3	2CKRVS5	1½CRVNL7½	1½CRVNL7½a	2CRVNL10			
175		2CKRVS2	2CKRVS5	2CKRVS5	2CRVNL7½	2CRVNL10				
200		2CKRVS3	2CKRVS5	2CKRVS5	2CRVNL7½	2CRVNL10				
225			2CRVN5	2CRVNL7½	2CRVNL10	2CRVNL10				
250			2CRVN5	2CRVNL7½	2CRVNL10					

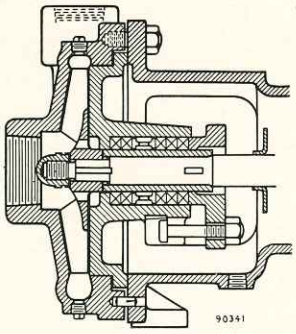
NOTE:—All performance is based on clear, cold water with 15 ft. suction lift **except** those marked "a" which are based on 10 ft. lift.

design modifications

Open Impellers



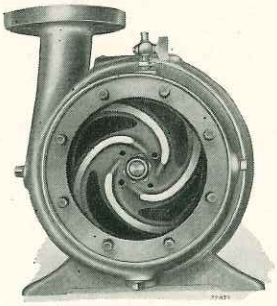
Open impeller on heavy duty line.

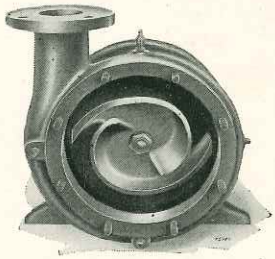


Open impeller on standard duty line.

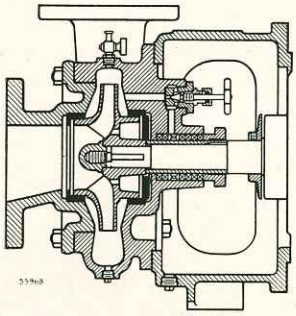
Open type impellers can be supplied for practically all sizes and models of cradle-mounted pumps, as indicated by the tabulation on Page 4. These open impellers permit the handling of liquids containing suspended solids without danger of frequent clogging.

Four vane open impeller, for handling lime, white water, sugar liquor and other liquids that contain relatively small particles of suspended material.



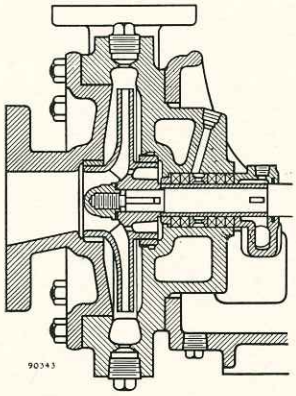


Two vane open impeller, for handling paper stock and other liquids containing large amounts of suspended materials. A hand hole suction piece can be supplied for ready access to impeller.



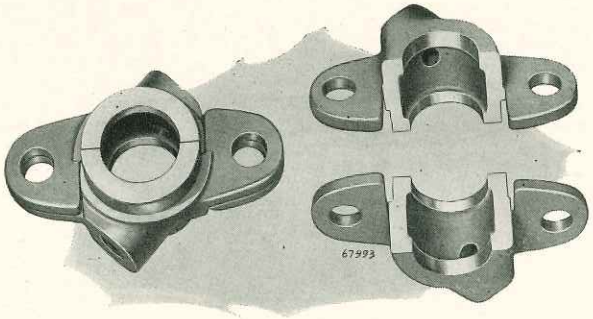
Shrouded Casing Rings

Where liquids containing abrasive materials are to be handled, renewable shrouded casing rings can be supplied to minimize erosion and maintain high efficiency for longer periods of time.



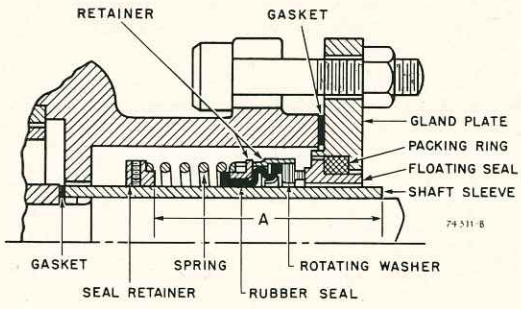
Water-Cooled Stuffing Box

The safe liquid temperature of cradle-mounted pumps can be increased to the maximum by the use of a water-cooled stuffing box arranged for connection to a separate external water source. The water chamber surrounds the stuffing box, effectively cooling the packing.



Smothering-Type Stuffing Box Gland

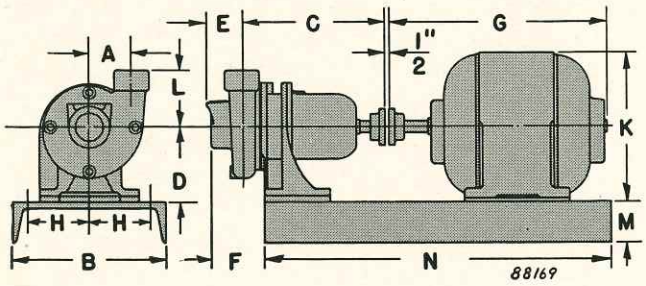
Where hot, and volatile or inflammable liquids are handled, any leakage around the packing can be safely flushed away by means of a smothering-type gland, which is installed in place of the standard stuffing box gland. Two piece construction permits complete removal from the shaft.



JCS Shaft Seal

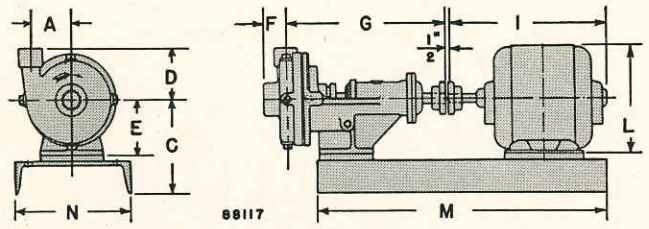
Where clear liquids are handled and dripless operation is required, the Type JCS Shaft Seal can be used in place of conventional packing. This is a highly efficient precision device in which the seal is mechanically maintained between a rotating carbon washer and the stationary floating seat. This seal is standard on all CKRVS models, and available on all other models listed.

dimensions



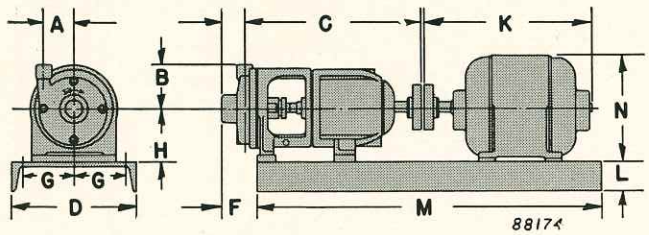
Motor Driven CKRVS

Pump Symbol and Discharge	Suct.	A	B	C	D	E	F	G	H	K	L	M	N
¾CKRVS.....	1¼	2 11/16	10	10 5/16	5 1/8	2¼	2⅞	11 7/16	3⅞	8 5/16	3⅜	2¾	23½
1CKRVS.....	1½	3	10	10 5/16	5 1/8	2¼	3	14 3/16	3⅞	8⅞	3¾	2¾	23½
1CKRVS-E..	1½	3½	10	10¾	5 1/8	2⅜	3 13/32	14 3/16	3⅞	9⅜	4⅜	2¾	23½
1½CKRVS.....	2	3¼	12	10 13/16	5	2⅜	4	15	4⅞	9⅞	4¼	3	27
2CKRVS.....	2½	3⅝	12	11⅛	5⅞	2⅞	4 1/16	17½	4⅞	10 5/16	5¼	3	27



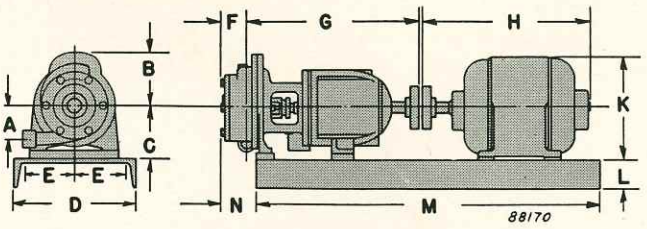
Motor Driven CRVN (Group 1A Cradles)

Pump Symbol and Discharge	Suct.	A	C	D	E	F	G	I	L	M	N
1CRVN.....	1½	3½	8	4⅜	4⅝	2	13½	15	9⅞	27	12
1½CRVN.....	2	3½	8	5	4⅝	2⅜	13 13/16	15	9⅞	27	12
2CRVN.....	3	3⅝	8⅞	6	4⅝	2 15/16	14⅛	16¾	11 1/16	28½	12



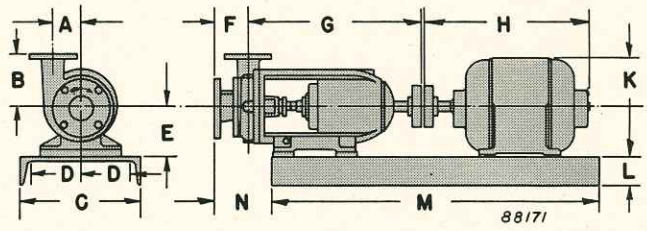
Motor Driven CRVN-CRVNL

Pump Symbol and Discharge	Suct.	A	B	C	D	E	F	G	H	K	L	M	N
1CRVN.....	1½	3½	4⅜	20 7/16	12	2	3¼	4⅞	5½	17¼	3	37⅝	11 1/16
1½CRVN.....	2	3½	5	20¾	12	2⅜	3 15/16	4⅞	5½	18	3	37⅝	11 1/16
2CRVN.....	3	3⅝	6	21 1/16	12	2 15/16	4 13/16	4⅞	5½	18	3	37⅝	11 1/16
1CRVNL....	2	3¾	5⅛	21 7/16	15	2⅜	4¼	6¼	6¼	20 3/16	3½	41¾	12 9/16
1½CRVNL....	2	3 7/8	5¾	21½	15	2⅜	4	6¼	7	22 13/16	3½	41¾	14 1/16
2CRVNL....	2½	4¼	6	21⅞	18	2¾	4¾	7¾	8	25 15/16	4⅛	46	15⅞



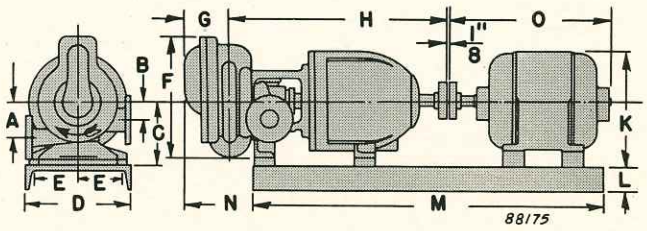
Motor Driven CMRVN

Pump Symbol and Discharge	Suct.	A	B	C	D	E	F	G	H	K	L	M	N
1CMRVN...	1½	4⅛	6 9/16	5½	12	4⅞	3⅜	20⅞	16¾	11 1/16	3	37⅝	4⅝



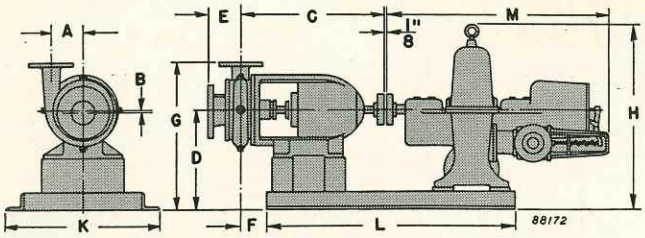
Motor Driven CRV

Pump Symbol and Disch.	Suct.	A	B	C	D	E	F	G	H	K	L	M	N
1½CRV.....	2	2¾	6¼	15	6¼	5½	4 1/32	21 7/32	18	11 1/16	3½	24½	7
1½CRVH.....	2½	4½	6½	18	7¾	10½	4 1/32	21 7/32	26 11/16	15 7/8	4⅛	44½	7
1½CRVL.....	2½	5⅜	6¾	15	6¼	5½	4 13/32	21 7/32	18	11 1/16	3½	34½	7⅜
2CRV.....	3	3⅝	6½	15	6¼	7	4 5/32	21 5/32	20 3/16	12 9/16	3½	37¾	7 1/16
2CRVH.....	3	4¾	7¾	18	7¾	10½	4 5/32	21 5/32	27 1/16	15 7/8	4⅛	44½	7 1/16
2CRVL.....	3	6½	8	18	7¾	7	5 1/32	24 5/16	22 13/16	15 1/16	4⅛	40 5/8	10 17/32
3CRVH.....	4	5½	8	18	7¾	10	5 17/32	24 5/16	27 1/8	17¼	4⅛	46 7/8	11 1/32
3CRVL.....	4	5½	9½	18	7¾	8	5 17/32	24 5/16	27 1/16	15 7/8	4⅛	46 7/8	11 1/32
3CRVS.....	4	4 1/16	6½	15	6¼	8½	4 5/32	21 31/32	22 13/16	14 1/16	3½	40	8
4CRVL.....	5	6⅜	10½	18	7¾	10	6 1/32	24 5/16	29½	17¼	4⅛	46 7/8	11 17/32
5CRVL.....	6	8⅛	8¼	20¾	9⅜	12	6 7/32	24 5/8	31 11/16	19½	4⅜	50 5/8	12 1/32
5CRVL(D).....	8	8⅜	9½	18	7¾	10	12	28½	29½	17¼	4⅛	55½	16
6CRVL.....	8	9¼	14	24¾	9¼	14	8 9/16	29 7/8	35 9/16	21⅝	4⅜	63¾	14⅛



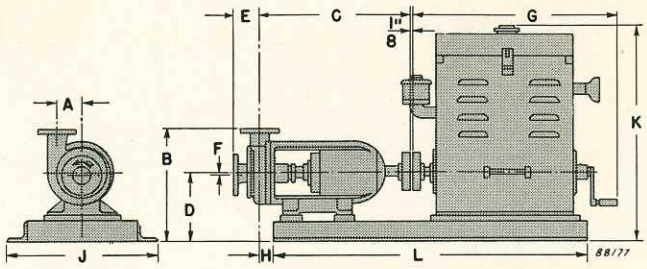
Motor Driven CMRV

Pump Symbol and Discharge	Suct.	A	B	C	D	E	F	G	H	K	L	M	N	O
1½CMRV.....	2½	4 15/16	2½	9	18	7¾	17¼	6 11/32	30 5/8	17¼	4⅛	55½	9⅜	26
2CMRV.....	3	5½	2¾	10	20¾	9⅜	18 15/16	7 31/32	30 5/8	19½	4⅜	59¼	7 31/32	28 15/16



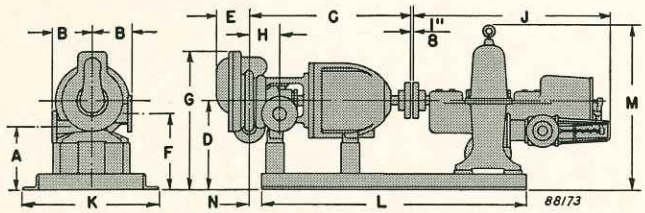
Turbine Driven CRV

Pump Symbol and Disch.	Suct.	A	B	C	D	E	F	G	H	K	L	M
1½CRVH.....	2½	4½	¼	21¼	13¾	4	2⅜	20¼	22⅛	22	36	28⅝
2CRVH.....	3	4¾	¼	21⅜	15⅜	4⅛	2¼	23⅛	25¾	24	40	33⅛
3CRVH.....	4	5½	5/16	24⅝	16¾	5½	4⅞	24¾	32	26	42	37 11/16



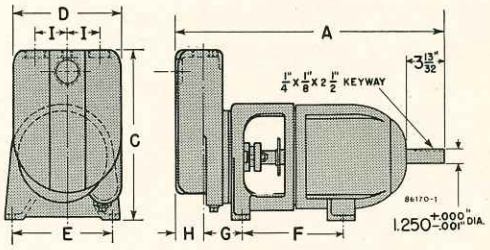
Engine Driven CRV

Pump Symbol and Discharge	Suct.	A	B	C	D	E	F	G	H	J	K	L
1½CRVL.....	2½	5⅜	16	21¼	9¼	4⅜	¼	30⅛	2⅝	18	36½	44
3CRVL.....	4	5½	21¼	24⅝	11¾	5½	5/16	30⅛	4⅞	22	36½	44
4CRVL.....	5	6⅜	22⅞	24⅝	12¾	6	5/16	40	4⅞	30	45¼	55



Turbine Driven CMRV

Pump Symbol and Discharge	Suct.	A	B	C	D	E	F	G	H	J	K	L	M	N
1½CMRV.....	2½	11 3/16	7½	30⅝	16¾	6⅜	14¼	26	5¾	37 11/16	26	50	32	2⅝
2CMRV.....	3	11¼	8	30⅝	16¾	8	14	27 11/16	5⅝	37 11/16	26	50	32	2⅝

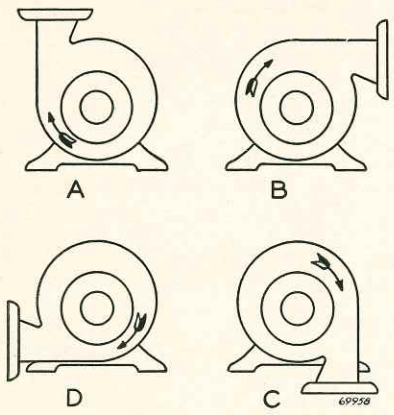


CKRVSP and CRVNP

Pump Symbol and Discharge	Suct.	A	B	C	D	E	F	G	H	I
1CKRVSP.....	1½	15 7/16	—	14⅛	8¾	6¾	—	2⅝	2 1/16	2½
1½CRVNP.....	2	23 3/32	—	14¾	9⅝	9	9⅛	3 11/16	2 13/32	2 15/16
2CRVNP.....	2½	23 25/32	—	15	10	9	9⅛	4⅝	2 15/16	3
2½CRVNP.....	3	26	—	20½	13	11	9 25/32	5 5/16	3 17/32	4

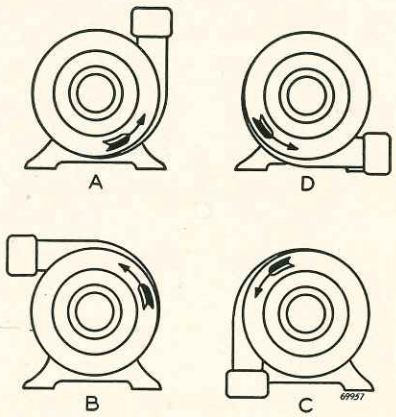
discharge positions

CRV, CRVN connections



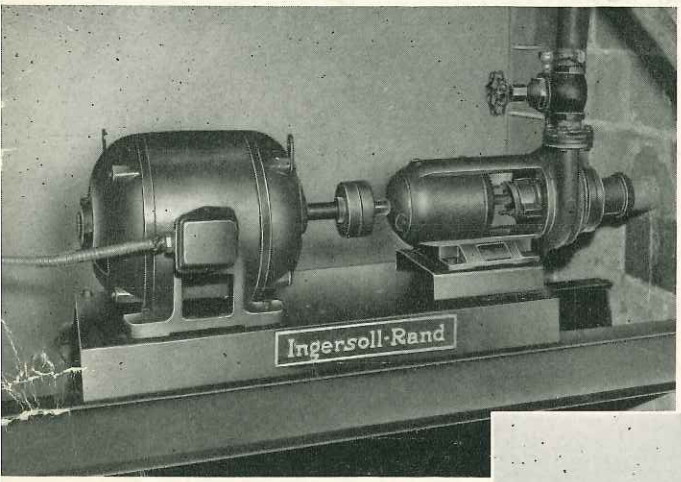
Discharge positions available on CRV (flange connections) and CRVN (threaded connections) pumps. Position "A" is standard and will be furnished unless otherwise specified. Only position "D" is supplied on two-stage pumps.

CKRVS connections

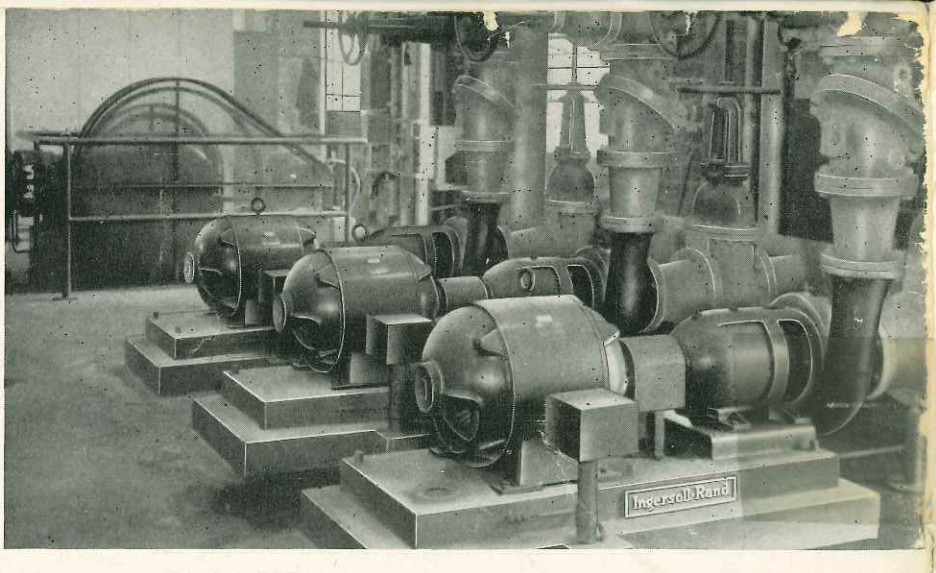


Discharge positions available on CKRVS pumps. Position "A" is standard and will be furnished unless otherwise stated.

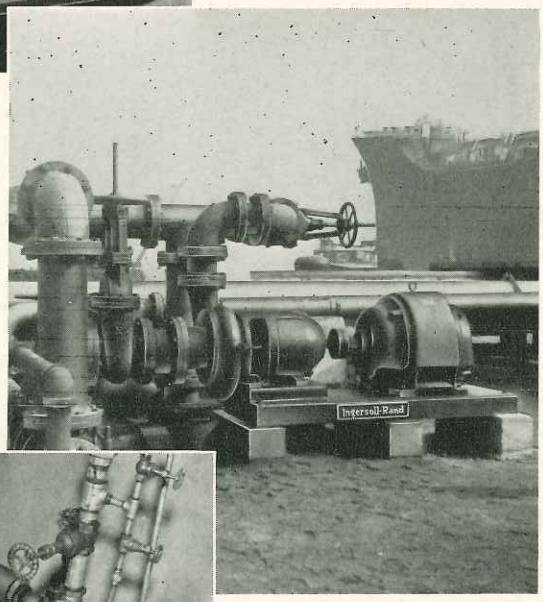
installations



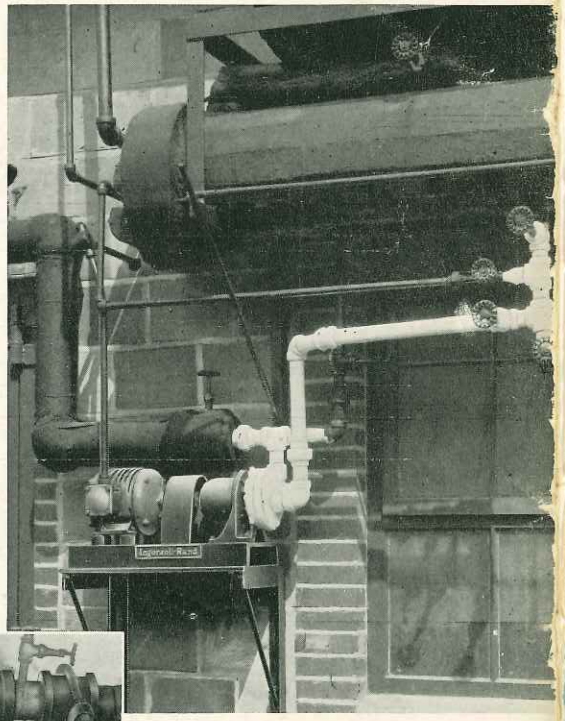
A Model 1½ CRVH cradle mounted pump on 24 hour water supply service in a large paper plant.

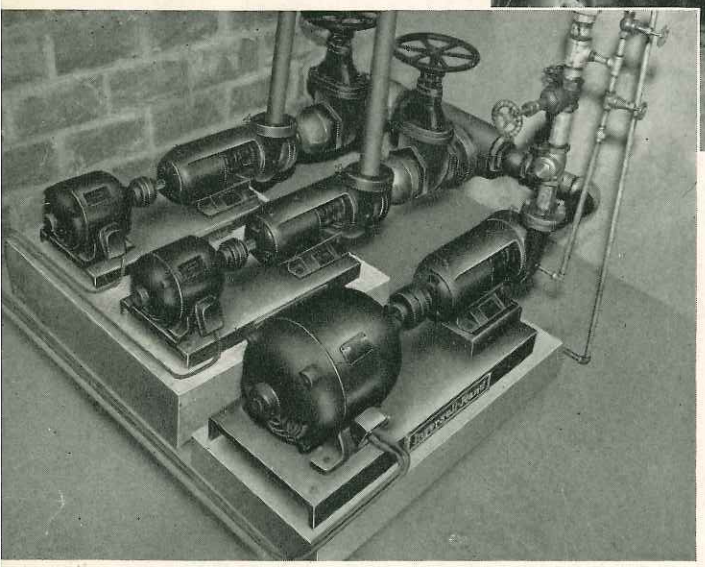


Three Model 6CRVL units that pump deionized water back to a deaerator in a large power station. These units handle 1500 gpm each.

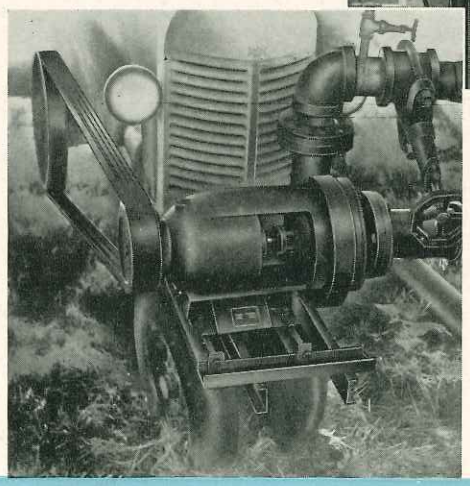


A Model 6CRVL cradle mounted centrifugal pump handling No. 2 fuel. The pump is equipped with a JCS type seal.





One Model CRVH and two Models CRVS cradle mounted units on filtration service in a silver plating company.



A 1CKRVS cradle mounted centrifugal pump circulating brine in the manufacture of penicillin.

A model 3CRVH cradle type unit being run from a tractor power take off for sprinkler irrigation service.

ATLANTA
BIRMINGHAM
BOSTON
BUFFALO
BUTTE
CHICAGO
CINCINNATI
CLEVELAND
DALLAS
DENVER
DETROIT
DULUTH
EL PASO
HONOLULU, T. H.
HOUSTON
KANSAS CITY
KNOXVILLE

Ingersoll-Rand

11 BROADWAY, NEW YORK 4, N. Y.

LOS ANGELES
MINNEAPOLIS
NEWARK
NEW ORLEANS
NEW YORK
PHILADELPHIA
PICHER
PITTSBURGH
POTTSVILLE
SALT LAKE CITY
SAN FRANCISCO
SCRANTON
SEATTLE
ST. LOUIS
TULSA
WASHINGTON
WILMINGTON

MEXICO, D. F.
HAVANA
LIMA
RIO DE JANIERO
LONDON
BRUSSELS
PARIS
LISBON
MADRID
JOHANNESBURG
BOMBAY
SOUTH MELBOURNE

(BRANCHES AND AGENTS IN PRINCIPAL CITIES THE WORLD OVER)

FORM 7223
7-E2